



# The Great Plains Laboratory, Inc.

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**GPL-MYCOTOX**

Requisition #

Physician Name

Patient Name

Date of Collection

Patient BirthDate

Time of Collection

Sex

Print Date

\*\*All positive results could be clinically significant

## MycoTox Profile

Metabolite	Results (ng/g creatinine)	Common Range of Positive Results
<b>Aspergillus</b>		
Aflatoxin-M1	0.00	3.5 - 20
		▲ 3.5 <span style="float: right;">20 ▲</span>
Ochratoxin A	15.00	4 - 20
		▲ 4 <span style="float: right;">20 ▲</span>
Gliotoxin	0.00	200 - 2000
		▲ 200 <span style="float: right;">2000 ▲</span>
<b>Penicillium</b>		
Sterigmatocystin	0.00	0.2 - 1.75
		▲ 0.2 <span style="float: right;">1.75 ▲</span>
Mycophenolic Acid	0.00	5 - 50
		▲ 5 <span style="float: right;">50 ▲</span>
<b>Stachybotrys</b>		
Roridin E	0.00	1 - 6
		▲ 1 <span style="float: right;">6 ▲</span>

Testing performed by The Great Plains Laboratory, Inc., Lenexa, Kansas. The Great Plains Laboratory has developed and determined the performance characteristics of this test. This test has not been evaluated by the U.S. FDA; the FDA does not currently regulate such testing.



Metabolite	Results (ng/g creatinine)	Common Range of Positive Results
Verrucarin A	0.00	1 - 10 ▲ 1 10 ▲
<b>Fusarium</b>		
Enniatin B	0.00	0.07 - 1 ▲ 0.07 1 ▲
Zearalenone	16.05	0.5 - 10 ▲ 0.5 10 ▲
<b>Chaetomium globosum</b>		
Chaetoglobosin A	0.00	20 - 80 ▲ 20 80 ▲
<b>Citrinin</b>		
Citrinin	7.77	10 - 50 ▲ 10 50 ▲



**Ochratoxin:** Ochratoxin A (OTA) is a nephrotoxic, immunotoxic, and carcinogenic mycotoxin. This chemical is produced by molds in the *Aspergillus* and *Penicillium* families. Exposure is done primarily through water damaged buildings. Minimal exposure can occur through contaminated foods such as cereals, grape juices, dairy, spices, wine, dried vine fruit, and coffee. Exposure to OTA can also come from inhalation exposure in water-damaged buildings. OTA can lead to kidney disease and adverse neurological effects. Studies have shown that OTA can lead to significant oxidative damage to multiple brain regions and is highly nephrotoxic. Dopamine levels in the brain of mice have been shown to be decreased after exposure to OTA. Some studies have hypothesized that OTA may contribute to the development of neurodegenerative diseases such as Alzheimer's and Parkinson's. Treatment should be aimed at removing the source of exposure. Agents such as oral cholestyramine, charcoal, and phenylalanine can help prevent the absorption of these toxins from food. Antioxidants such as vitamins A, E, C, NAC, rosmarinic acid, and liposomal glutathione alone or in combination have been shown to mitigate the oxidative effects of the toxin. Bentonite or zeolite clay is reported to reduce the absorption of multiple mycotoxins found in food, including OTA. Studies have also shown that OTA is present in sweat, which supports the use of sauna as a treatment to increase the excretion of OTA. (PMID 17195275, 16621780, 16293235, 27521635, 22069626, 24792326, 22253638, 16140385, 2467220, 16844142, 19148691, 22069658, 16019795, 18286403, 15781206, 11439224, 17092826, 32710148)

**Zearalenone:** Zearalenone (ZEA) is mycotoxin that is produced by the mold species *Fusarium*, and has been shown to be hepatotoxic, haematotoxic, immunotoxic, and genotoxic. ZEA exposure is mostly through water damaged buildings, although ZEA is commonly found on several foods in the US, Europe, Asia, and Africa. The foods known to be contaminated with ZEA include wheat, barley, rice, and maize. ZEA has estrogenic activity and exposure to ZEA can lead to reproductive changes. ZEA estrogenic activity is higher than that of other non-steroidal isoflavones (compounds that have estrogen-like effects) such as soy and clover. ZEA exposure can result in thymus atrophy and alter spleen lymphocyte production, as well as impaired lymphocyte immune response, which leads to patients being susceptible to disease. ZEA is deactivated primarily through glucuronidation; individuals with impairments to this pathway will be much more susceptible to this compound even at very low levels. Treatment with the antioxidants lycopene and resveratrol has been beneficial in negating the harmful effects of ZEA in several studies. Bentonite or zeolite clay is reported to reduce the absorption of multiple mycotoxins, including ZEA. (PMID: 17045381, 19330061, 11384734, 1387742, 698923, 1599403, 2276698, 22645433, 24632555, 6239410, 6235161, 24503513, 25682699, 27489133, 15781206, 11439224, 17092826, 16095665, 16782537, 17561436, 11245394)



**Dihydrocitrinone:** Dihydrocitrinone is a metabolite of Citrinin(CTN), which is a mycotoxin that is produced by the mold species *Aspergillus*, *Penicillium*, and *Monascus*. CTN exposure can lead to nephropathy, because of its ability to increase permeability of mitochondrial membranes in the kidneys. The three most common exposure routes are through ingestion, inhalation, and skin contact. CTN has been shown to be carcinogenic in rat studies. Multiple studies have linked CTN exposure to a suppression of the immune response. PMID: 11567776, 24048364, 10788357